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TITLE : PROTECTIVE PIPE OF THERMOCOUPLE

ABSTRACT : PURPOSE: To use a thermocouple even at high temp. exceeding 1,500°C, by forming the protective pipe of the high temp. thermocouple from a sintered body composed of aluminum nitride (AlN).

CONSTITUTION: An AlN sintered body is obtained by molding a mixture prepared by compounding an AlN powder, a powdery sintering aid and, if necessary, a molding aid at first and baking the molded one. As the sintering aid, oxides of Mg and Ca are used and Ca-oxide or Ca-carbonate is pref. AlN is hardly sinterable but, by compounding the sintering aid, liquid phase sintering advances at low temp. By forming a protective pipe from the AlN sintered body thus prepared, a thermocouple can be used even at high temp. exceeding 1500°C. The upper use limit of a conventional one made of an Al₂O₃ sintered body is 1,200~1,300°C in a non-oxidative atmosphere.

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